

WHAT IS CLAIMED IS:

1. A 3-grid neutral beam source comprising:

a plasma generating chamber;

5 a grid assembly including first to third grids, which are sequentially overlapped with each other by interposing an insulation material therebetween for obtaining a great amount of ion flux at a low ion energy; and

a reflective member for converting an ion beam into a neutral beam by reflecting the ion beam.

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2. The 3-grid neutral beam source as claimed in claim 1, wherein the first grid is connected to a positive voltage power supply, the second grid is connected to a ground, and the amount of ion flux is increased due to a potential difference between the first and second grids.

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3. The 3-grid neutral beam source as claimed in claim 1, wherein a first positive voltage is applied to the first grid, which is positioned uppermost portion of the grid assembly adjacent to the plasma generating chamber, in order to accelerate ion beams, and a second positive voltage is applied to the third grid, which is positioned lowest portion of the grid assembly, so as to prevent the ion beams from obtaining a high energy during a neutralization process, the first
20 positive voltage being different from the second positive voltage.

4. The 3-grid neutral beam source as claimed in claim 3, wherein the first positive voltage is higher than the second positive voltage.

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5. The 3-grid neutral beam source as claimed in claim 3, wherein the first positive

voltage is lower than the second positive voltage.

6. The 3-grid neutral beam source as claimed in claim 1, wherein the first grid is connected to a positive voltage power supply, the second grid is connected to a ground, the amount
5 of ion flux is increased due to a potential difference between the first and second grids, a first positive voltage is applied to the first grid, which is positioned uppermost portion of the grid assembly adjacent to the plasma generating chamber, in order to accelerate ion beams, and a second positive voltage lower than the first positive voltage is applied to the third grid so as to decrease ion energy of ion beams.